

TORQUE LIMITING MECHANISM FOR A MECHANICAL
ASSIST MOBILE STORAGE SYSTEM
ABSTRACT OF THE DISCLOSURE

A mobile storage unit includes a drive system which is operable in
5 response to rotation of an actuator handle mounted to the mobile storage unit. A torque
limiting mechanism is interposed between the actuator handle and the drive system, for
rotating an input member of the drive system in response to rotation of the actuator
handle. The torque limiting mechanism is operable to de-couple the actuator handle
from the drive system input member when an excessive force is applied to the actuator
10 handle, to prevent adverse effects which can result from application of an excessive
force to the components of the drive system. The torque limiting mechanism includes a
hub mounted to the actuator handle and an input member mounted to an input shaft
associated with the mobile storage unit drive system. In one form, the torque limiting
mechanism includes one or more engagement members interposed between the hub and
15 the input member, which are biased toward an engaged position in which the
engagement members couple the hub and the input member together so as to transfer
rotary force from the actuator handle to the input shaft. When a force exceeding a
predetermined threshold is applied to the actuator handle, the engagement members
move to a disengaged position to de-couple the hub member from the input member,
20 and to thereby prevent transfer of such force to the input shaft. The engagement
members may be in the form of spherical members which are received within passages
formed in the hub member and are seated in passages or recesses formed in the input
member. In another form, the torque limiting mechanism includes a friction disc
between the actuator handle and the input member for transferring a force below a
25 predetermined threshold, and for preventing the transfer of force above the
predetermined threshold.